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Head teachers' Computer Competency and Computerized Management Systems Adoption in Public Primary Schools, Kadibo Division, Kenya

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Abstract: Introduction of education management information systems may contribute to improved management and academic performance. Kenyan schools however still use manual record keeping for daily managerial activities. Relationship between head teacher computer competencies and computerized managerial systems adoption in Kadibo, Kisumu County, Kenya is not known. This study aimed at determining relationships between head teacher computer competencies and adoption of computerized management systems in public primary schools in Kadibo division. A descriptive survey design was employed on a target population of42 schools. Simple random sampling was used to select 20 schools out of which respective head teachers responded. Spearman's correlation analysis was used to determine the relationships. The instrument was reliable ($a = .86$) using test- retest. Found that level of head teachers' computer competency as low (60%);and level of computerized managerial systems adoption equally low(50%). Correlation between head teacher computer competency and computerized managerial systems adoption $r_s = -.092$was negative and non significant. Study evidenced both low head teacher computer competencies and low adoption of computerized managerial systems. This low head teacher computer competencies tended to reduce computerized managerial systems adoption though the relationship was insignificant. Concluded that the relationship between head teacher computer competencies and adoption of computerized management systems was negative and nonsignificant. Recommended training of head teachers and other key school staff on ICTs in order to enhance computerized management systems adoption. The study has school managerial implications in public primary schools.
Keywords: Education Management Information Systems; academic performance; Ministry of Education, Kenya.

INTRODUCTION

Record keeping in management cannot be gainsaid. According to Emerson [1] "records are documents in whatever medium, received or created by an organization in the course of business" Records kept by educational institutions give details about the students and entire staff. Record keeping in educational management and utilization are very vital to the continual existence of the school. "When records are made available and put into timely use, they will enable both principals and teaching personnel to know about their students, and through this, will be in a better position to assist the students academically, morally and socially would be able to present the information to whoever may need it"[2].

Over years, record keeping in schools has always been done manually. In these institutions, manual record has brought a lot of challenges such as interpreting of scores from assessment tools, reports preparation, inadequate facilities for record keeping, and shortage of teaching personnel who double as workers [3]. Record keeping in management is one of the key goals and helps in creation, use and maintenance of records. However, unless the records are properly organized for easy storage presentation and accessibility this goal may not be realized.

The world has become a global village thanks to the Information technology and the internet and therefore elementary computer competency is necessary for people to have the capacity and capability to access and apply information. The Economic Commission for Africa [4] has indicated that the ability to access and effectively utilize information is but a necessity for development.

METHODOLOGY

The descriptive survey research design was used for this study. According to Groves *et al.* [10] survey data helps to identify important beliefs, perceptions and attitudes of individuals. The study variables included; computer facilities available, level of computer training of teachers, source of funding for computer programmes, government policy on use of

computers for management in primary schools and the level of computerized systems adoption in public primary schools. The study was carried out within two education zones namely: Nyangande and Rabuor zones, all in Kadibo Division, Kisumu County in Kenya. The area was justified for the study since the schools are homogeneous as far as the location, funding through government, academic and management staff is concerned.

Sampling

The study targeted a population of 42 public Primary Schools within Kadibo Division, Kisumu County. A Sample of 20 schools was selected. A head teacher from each of the sample schools was the respondent. Simple random sampling method was used to select the sample because the Schools possess similar characteristics. The apparent similarities in public schools were defined in this case in terms of qualifications and staff deployment to the schools (both managerial and academic).

Instruments

Primary data were collected through semi-structured self-administered questionnaires. The questionnaires included background information of the head teachers' ways of keeping records in schools, the number of computers in schools, and items on head teachers computer literacy levels. The questionnaires were taken to each school by the researcher and were filled by the respondents. The instruments were validated by education experts and project supervisors. The test-retest technique was used to test instrument reliability. The instrument was administered randomly to four head teachers twice. There was a time lapse of two weeks between the first and the second test. The reliability coefficient was $a = .86$ indicating instrument reliability.

Data analysis

The data collected from the field were analyzed using descriptive statistics e.g. modal scores and Inferential statistics thus Spearman's rank order correlation coefficient to compare the relationships between the competency levels of school managers in MSOffice application software, the level of computer use in schools as a management tool, and the number of computerized system facilities for use in schools.

RESULTS

Characteristics of the respondents

From Table1 it was observed that among the respondents surveyed 17(85%) were male and three(15%) were female. Majority of the respondents interviewed were P1 certificate holders at 50%, followed by diploma holders at 25%, then undergraduate degree holders at15%, respondents promoted on merit to headship were two. There were no postgraduate respondents surveyed.

Table 1: Characteristics of the respondents

		Frequency	Percent(%)
Gender	Male	17	85
	Female	03	15
Academic qualifications	Postgraduate	00	00
	undergraduate	03	15
	Diploma	05	25
	P1.Certificate	10	50
	Others(Merit promotions)	02	10
Physical location	Rural	20	100
	Urban	00	0

Level of competency of head teachers with MSOffice application software

Majority of the respondents, 60% were rated as having low level of competency. This was followed by respondents with moderate levels at 35%. Respondents with very low level of competency were found to be 5%.No respondent had a high level of competency with the use of MSOffice application software. The Fig.1 below summarizes these findings:

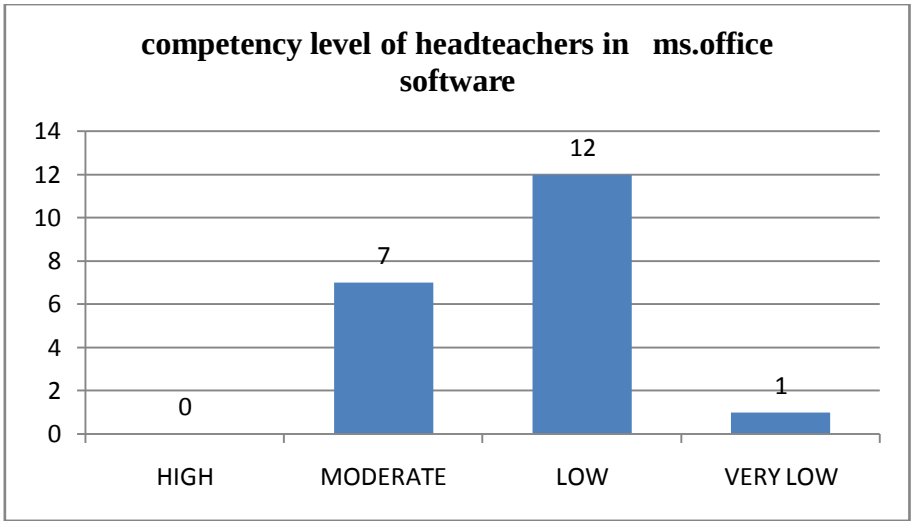

Fig. 1: Competency level of head teachers MSOffice application software

Level of adoption of computerized systems (EMIS) as a management tool in public primary schools in Kadibo Division?

According to Table 2, the most frequent level of use (mode) of the EMIS for management of school activities by respondents was moderate level at 50% (weekly), followed by low and very low use of computers at 25% each (monthly and never) respectively. However there were no respondents who used computers for management at a higher level (daily) for management of school activities.

Table 2: Teachers use EMIS for managing school activities

	Frequency	Percent (%)
Moderate usage	5	25.0
Low usage	10	50.0
Very low usage	5	25.0
Total	**20**	**100.0**

Level of accessibility to computers by respondents for their use in school management?

Referring to the third research question, the study found out that majority of the respondents had access to a computer for less than one hour (85%) and 15% of the respondents had access of between 1-2 hours. No respondent had access to computers for more than two hours and above out of the total sample of 20 respondents studied. The Fig. 2 below captures these findings:

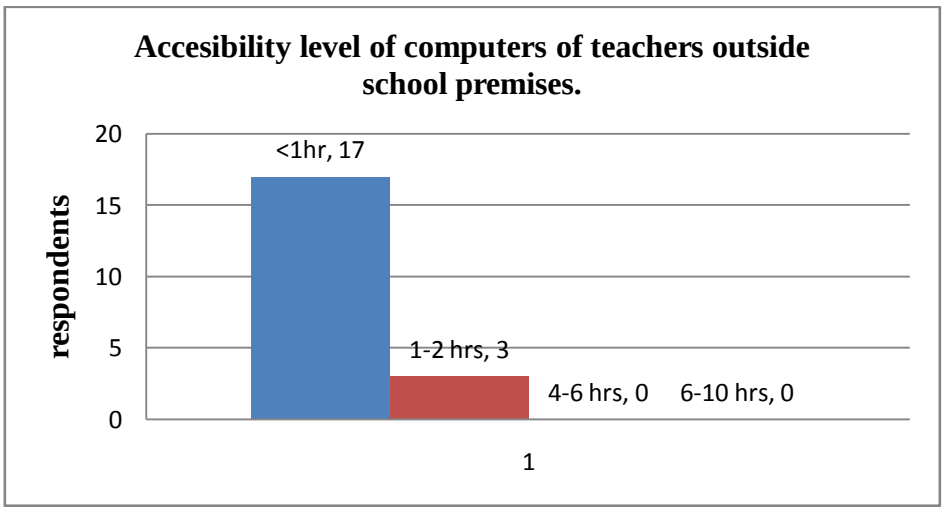

Fig-2: Accessibility levels of head teachers to computers outside the school premises e.g. cyber cafes.

Electricity connections to schools

The study revealed that out of the 20 sample schools, 12 schools (60%) had no electricity connected to them while 8 schools (40%) had electricity connections already. Table 3 below captures these findings.

Table-3: Electricity connections to schools

	Frequency	Percent (%)
No electricity connection	12	60.0
Electricity connected	08	40
Total	20	100.0

Relationship between head teachers computer competency and computerized managerial systems adoption

Spearman's co-efficient of rank correlation was used to examine the relationships among competency level of head teachers in MSOffice application software, use of EMIS for management of schools, level of computer accessibility by head teachers, and electricity connectivity to schools, for n=20 respondents. The correlations between pairs of variables were reported in table below. Significant correlations were noted.

Table-4:Inter-correlations among variables

	1	**2**	**3**	**4**
1. Competency level in MS Office application software	1.000			
2. Use of EMIS for management of school	-.092	1.000		
3. Computer accessibility	.437	-.594**	1.000	
4. Electricity connectivity in school	-.873**	.000	-.343	1.000

**.Correlation is significant at the 0.01 level (two tailed). Source: Research data,(2012)

Spearman's rho correlation for these variables revealed that level of head teachers' competency in MSOffice application software and use of EMIS for management purposes were not significantly related, $r_s = -.092, n = 20, p > .01$, two tails.The correlation matrix on Table 4 also revealed that there was a moderate positive correlation between level of MSOffice application software competency of head teachers and level of computer accessibility of head teachers, though not significant. $r_s = .437, n = 20, p < .01$, two tails. The matrix further revealed that there was a significant negative correlation between level of MSOffice application software competency of head teachers and electricity connectivity to schools. Therefore $r_s = -.873, n = 20, p < .01$, two tails. The correlation between use of EMIS for management purposes and the level of accessibility to computers by head teachers were significantly inversely related $r_s = -.594, n = 20\, p < .01$, two tails.The matrix also showed a weak negative correlation between computer accessibility and electricity connectivity to schools $r_s = -.343, n = 20, p < .01$, two tails. This could be because electricity could be available but accessibility of computers for schools 'use could still be low due non-availability of computers.

DISCUSSIONS

Majority of the respondents (60%), were rated as having low level of competency in MS office application software, followed by moderate levels at 35%, and respondents with very low level of competency were found to be at 5%. The apparent paradox of having alow level of competence could be due to the fact that there were no computers in schools to enhance practice in computer use coupled with low accessibility levels. The government of Kenya through the Ministry of Education had plans to integrate ICT training in teachers' training programmes, where school administrators and teaching staff were to be presented with opportunities to develop file management, word processing, spread sheets, email, and Internet skills, as well as ICT integration awareness. In this endeavor, foundation skills were to be a stepping stone to using computers to enhance school management objectives[8]. Similar sentiments were forwarded by respondents in studies done by Lau and Sim [5] when they (respondents) gave higher ratings to the need for school based computer literacy training and development at 80 percent.

The study found majority of respondents had access to computers for less than one hour (85%) and 15% of the respondents had access of between 1-2 hours. No respondent had access of more than two hours and above out of the total sample of 20 respondents studied. The apparent access of the computers were from facilities outside the school e.g. Cyber cafes. According to Hennessy *et al.*[6], introducing technology into schools is largely dependent upon the availability and accessibility of ICT resources. Only 40% of the sampled schools had electricity connected according to the study. Internet

connectivity to schools can substantially improve the efficiency and speed of data collection from schools and reduce the amount of effort spent on administrative functions[7].

In assessing the frequency of use of EMIS to process school test and assessment data , it was interesting to note that 70% of the respondents confirmed using EMIS monthly, 30% used EMIS once a week. This low frequency of EMIS use is due to the fact that the service is mostly outsourced from cyber cafes around schools, and this being schools in rural areas the commercial computer facilities could be far apart from these schools. However no respondent used EMIS on a daily basis for the same. This apparent above average usage of EMIS for processing school test is adduced to outsourcing these services from commercial computer bureaus. This research has shown the extent to which computer is being utilized, and has identified the factors that enhance or impede its adoption at public primary schools, and which can be used to explain the level of adoption of computerized systems as management tool in these schools.

The findings also showed that use of computerized systems and its integration in the primary schools management was not widespread consistent with[9]. Boakye and Banini [9] argued that teachers needed to seek and receive initial and on-going training on how to use computers to enhance their management training. They called for "re-forming" teacher education rather than just trying to "re-tooling" the teachers.

Therefore, it was concluded that head teacher computer competencies and adoption of computerized management systems had a negative insignificant relationships. It was recommended that training head teachers and other key school staff on ICTs would enhance the adoption of school computerized managerial systems. The small samples size however limits the generalization of these conclusions and recommendations.

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